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useful with regard to money and measures, by avoiding a quantity of fractions. The King, after speaking at great length on this subject, expressed a desire that we should make a trial with some other number than 10. Having represented to him that this could not be done unless we invented new figures, to which also names altogether different from the ancient ones must be given, as otherwise great confusion would arise, he desired us to prepare an example in point. We chose the number 8, of which the cube root is 2, and which being divided by 2, is reduced to the primitive number 1. We also invented new figures, to which we gave new names, and proceeded according to the ordinary method; after which we applied them to the cubic calculations, as well as to money, and to measures. The essay having been presented to the King, he was pleased with it" (*Appendix to Life, etc.*, pp. 123, 124).

On the so-called Alaguilac Language of Guatemala.

By D. G. Brinton, M.D.

(*Read before the American Philosophical Society, Nov. 4, 1887.*)

In his valuable treatise on the ethnography of the Republic Guatemala, Dr. Otto Stoll classes the Alaguilac language, once spoken by a tribe resident on the Motagua river in that country, among the languages of unknown affinities, *Sprachen unbekannter Stellung*; and he also adds, that at the time of his visit to the vicinity—now about five years ago—the tongue was entirely extinct, being supplanted by the Spanish.*

It were greatly to be regretted that any language or dialect should perish completely, leaving no record behind it by which we can assign its place in the linguistic scheme. I am happy to say, this is not the case with the Alaguilac. I have in my hands materials from several sources from which to identify this now extinct tongue, and also to cast some interesting glimpses on the ancient civilization of the tribe which once spoke it. These sources are:—

I. Four leaves in folio, originals, from the archives of the Parish of San Cristobal Acasaguastlan, dating from 1610 to 1637, in bad condition, but mostly legible.

II. A collection of words and phrases obtained in 1878 by Francisco Bromowicz from an Indian woman at the village of

* Stoll, *Zur Ethnographie der Republik Guatemala*, s. 172. Also, *Guatemala, Reisen und Schilderungen*, s. 304.

San Augustin Acasaguastlan, named Dolores Corral, then supposed to be one hundred years old or over, and the last of her tribe who could recall the native tongue. Bromowicz appears to have visited the village on the instigation of Don Juan Gavarrete, the well-known Guatemalan antiquary, or of Dr. C. H. Berendt, or of both.

III. Several *informes* of Don Eligio Pais, municipal judge of Chiquimula, and of the cura or parish priest of San Cristobal Acasaguastlan, Don José Inocente Cordon, dated in 1878.

With these means I am enabled to throw sufficient light on the affinities of the Alaguilac language, and add something to our knowledge of the archæology of the locality.

First, a few words on its geographical location.

The parish of San Cristobal Acasaguastlan is situate on the Motagua river in Guatemala, department of Chiquimula, forty-five miles northwest of the city of Guatemala. Its dependencies are the hamlets of Chimalapan, Usumatlan and Tecolutan. About eight miles to the east of it, is the parish of San Augustin Acasaguastlan, whose inhabitants formerly spoke the same tongue.

In the letter descriptive of this region sent to the King of Spain, in 1576, by the Licentiate Diego Garcio de Palacio, he says briefly, "in the valley of Acacevastlan is spoken the Tlacacebastleca."* In the list of languages current in Guatemala as given by the historian Juarros, at the beginning of this century, no such tongue is mentioned, but in place of it, apparently, he names the *Alaguilac*.† The ordinary native tongue of that part of the valley is the Chorti, a dialect of the Maya of clear affinities, and all the surrounding tribes belong to the Maya stock.

At present, as we have seen, travelers agree in the statement that all the Indians of Acasaguastlan speak Spanish only, and the Alaguilac is reckoned therefore among the extinct tongues of America.

The place-names mentioned in these accounts are clearly of Nahuatl origin. Acasaguastlan‡ is a slight modification of *acaga-*

* *Carta de García Diego de Palacio*, p. 20. Ed. Squier.

† *Historia de Guatemala*, Tom. ii, p. 35.

‡ The term given by Palacio—Tlacacebastleca—is a derivative under the ordinary rules of Nahuatl grammar from *Acacacatlan*, the termination *cca* being the plural of the suffix *gentilis*, *ecall*, and the prefix *tla*, meaning here the thing possessed by or peculiar to these people.

callan the place of rushes or reeds; Chimalapan is compounded of *chimalli*, a shield, with the post-position *pan*, in or at; Usumatlán means the place of monkeys, from *ozumatl*, monkey, and *tlán*, locative ending; and Tecolotan, the place of owls, from *tecolotl*, owl, and *tlán*. The word Alaguilac is stated in the MSS. before me to be the Mexican name of a species of edible fruit; though were it not for this authority, one might suppose it to be from the *nomen gentile*, *atlacuilecatl*, which means "the people who live at the place of drawing water" (*atl*, water, *cui*, to take, *ecatl*, terminatio gentilis).

Evidently, therefore, we find ourselves in a Nahuatl colony, one of those which were scattered through Central America, like the Pipiles of Escuintla, and the Nicaraos in Nicaragua. It has been shown recently that this active race extended its settlements almost to the isthmus of Panama, and established a colony on the borders of the Chiriqui Lagoon.*

Everywhere they carried with them reminiscences of that advanced culture which they had developed in the Valley of Mexico. This is manifest to-day by the superior make of pottery and the fragments of stone and brick edifices which mark the site of their ancient abodes.

Acasaguastlan is no exception to this rule. In the *informe* of the worthy cura above mentioned, he writes as follows:—

"At the confluence of the Rio Grande de Acasaguastlan [*i. e.*, the Motagua river] with that of Teculután, which is to the east of this parish, there are some prominent and remarkable relics of a dense native population, which prove this to have been the capital of a province. There are neat, level pavements which lead from the buildings to the river. The buildings themselves indicate that they were towers or pyramids. The base is circular and they must have had an altitude of fifty Spanish yards (*varas*). At present they are covered with lofty trees, and the ruin on the promontory, now the highest, is sixteen or twenty yards in height. In the midst of these edifices, at the place named, there is a large open space, circular in form, like a plaza. A continuous row of mounds extends from these edifices and pyramids, on both sides of the main river, to the village of Acasaguastlan.

* A. Pinart, in the *Revue d'Ethnographie*, Tome vi, p. 121, identifies the Seguas Indians of the Chiriqui Lagoon with the Nahuas.

One of these has been demolished, and proved to be of stone, yielding as much as two hundred perches, without counting the cement. Each of them contains an arch either complete or in ruins. In the one mentioned, three small arches were found, constructed with some symmetry, but it was not ascertained whether the material was joined by lime, as at present it looks more like clay. Portions of the wall were smoothly plastered and some nearly erased paintings were visible. In the structure were found earthen pots, some roughly made, others of excellent workmanship, and with them incense burners, such as the Indians use at the present day in their Brotherhoods (*cofrades*). There were also found pieces of brick, much like foreign brick, meal-stones in the shape of large shells, arrow points of glass [*i. e.*, volcanic glass, obsidian], and human bones. No one has taken special interest in investigating these remains, and I have known persons who seemed quite intelligent pass by them without awarding them the least attention, and as if they did not see them. Finally, I add that I am assured that no precious metal has been discovered in them, although they may have had anti-mony, which the Indians used to polish their earthenware as it is quite lustrous."

Such is the interesting description furnished by the parish priest, and it reveals plainly that the ancient race of *Acasaguastlan* belonged among the more highly cultivated nations of the continent.

I have not found in the historians of Guatemala the records of the first exploration of this portion of the valley of the *Motagua*, nor in later travelers the account of any visit to these ruins. It would be of especial interest to determine whether they approach the distinctively Mexican or the Maya style of architecture. The presence of the arch points to the latter, but this architectural element was not altogether foreign to the former.

Fifty miles as the bird flies, lower down the *Motagua* river, are located the remarkable ruins of *Quirigua*, with their elaborately carven monoliths, twenty feet or more in height. According to the most recent observers,* these relics present evidences of an antiquity greatly exceeding that of *Copan* or *Palenque*, both which venerable sites had long been deserted at the period

* See *Copan und Quirigua*, by Heinrich Meye and Dr. Julius Schmidt, Berlin, 1883.

of the Conquest. The valley of the river Motagua, therefore, was probably one of the centres of Central American civilization, and a study of its archæology might prove peculiarly productive.

The reduction and conversion of the tribe dwelling at Acasaguastlan probably took place before the middle of the sixteenth century. The intelligent members of the community were taught to read and write their native tongue, and the records in my hands are by native scribes, who kept these notes or accounts in order to submit them from time to time to their civil or ecclesiastical superiors.

These records are in a dialect of Nahuatl closely akin to that of the Pipiles of Escuintla and the neighborhood. Both dialects are but slight modifications of the tongue as spoken in its purity in the Valley of Mexico. Perhaps much of the apparent difference is due to an uncertain orthography and the inexpertness of the writers.

The subjoined extracts from the archives under the dates 1610, 1634, 1636 and 1637, will show conclusively that the Nahuatl was the current tongue of the parish at that time. The entries relate to fines which were imposed on the natives for various misdemeanors, and of which the civil officers were obliged to pay a portion from time to time to their superiors. The receipts of these superiors are entered in Spanish in the archives and present the honored autographs of Juan de Montoya and G. de Mendieta.

Although various Spanish words occur, and the imperfect handwriting as well as the poor condition of the MSS. render these specimens less satisfactory than could be wished, it will nevertheless be apparent at a glance that the dialect is a tolerably pure Nahuatl, such as was common in Mexico a century after the Conquest.

Extracts from the Parochial Archives of San Augustin Acasaguastlan.

Y nipan 20 de Octubre 1610 años niman in teguantin S^r Don Fra^{co} Castro Bernabe de Chaves Christobal Hernandez attos Ju^o Perez niço Melejior Perez tih Gaspar Lopez Chuvuru Augustin Hernandez rexidores nican vticchhuaque condenat yei tupilhuan

ypanpa onomictique (two words illegible) ica ce ciuat itoca Magdalena ica iztaca tihi vquichiuaque yuan nican Catalina Curmi quezqui ipanpa vticipenaltique vqitali ome tostones Gaspar ci timal vqitali chiquacen tomin Catalina Curmi yuan Di° Salu-altierra vqitali chiquacen tomin quezquiz ypanpa vneci nican macuili tostones.

* * * * *

Y nipan ome tonalli mesti de Mayo 1634 años ticpenaltique yei ciuatltque ipanpan omoqualantique ypan ytequiuh yquti ce ye xi ticmati ypalta ermita saneta vneci nican m^a Ju^{na} ce ynamic Fr^{co} cucu, ce ynamic P^o mendes ce ynamic X^obal Her^{dz} yuqui ticpenaltique vneci nican matlaeti tomin Andres Mendes Alcalde Gaspar Lopez Chucuru Alcalde Dg^o her^{dez} D^o Felipe Regidores noyxpan neuatl Baltasar de Gabes escribano cabildo.

* * * * *

1636 años.

Y nipan 24 de Abril 1636 años ypan vticipenaltique ome tupiluan omo tatani Justia ypanpa omohaçi ychau nican ciuatl vquitatani Justia X^oual permesso yuqui vneci yca auilnemiliz yeuatl ipanpa vticipenaltique X^oual Ruy mucuc yuan bernaldina yuqui ypanpa vneci nican chiquacen tostones teuantin alcaldes Fr^{co} caynac Diego Felipe yuan Regidores Anton mucho x^oual br^{me}bico Miguel Estorca Regidores.

* * * * *

Y nipan 23 tonali mesti de Junio 1637 años ypan vticipenaltique ome tupiluan omotatani Justi^a nican X^oual axpal ypanpa can qui talili y ciuah yuqui vtictatanique ytic nican tu cabildo auin quitoua X^obal ypan vniquita vquia ce tacatl nochan ayac vniquixmati quitoua vqui melaua nican y ciuah melauac yeuat X^obal her^{dez} ypanpa yeuat niquixmati opa espa ni mauilli yuan quitoua to yxpan teuantin altos Regidores yuqui ypanpa ticpenaltique vneci nican naui tostones can ixquich nican timotimaticque x^obal chururu Diego Felipe alcaldes gaspar macaua Ju^o lopez a lo cauil Ju^a basqz Regidores no yxpan neuatl Baltasar de Chabes es^o cabildo.

* * * * *

The words collected by Mr. Bromowicz number about 150, and according to the *informes* accompanying his report, were obtained

from the only person then living in the region who could recall the tongue of former generations. In the ten years which have elapsed since his visit, Dolores Corral has, doubtless, been gathered to her fathers, and the words of this vocabulary remain to us as the sole monument of the original speech of her tribe. Fortunately they are sufficient in number and clear enough in their affinities as to leave no doubt concerning their linguistic affinities. I present them in one column, arranged in alphabetical order, and by their side, their correspondents in the pure Nahuatl of the Valley of Mexico.

Comparative Vocabulary of the Alaguilac and Nahuatl.

Alaguilac of San Augustin

Acasaguastlan.

Nahuatl.

Achko, above,	aco
achpoco, much,	ixachi
achtko, monkey,	quauhchimal
aktakaki, deaf,	nacatzatza
aschka, day,	tlacatli
at, water,	atl
atemet, a louse,	atemitl
atenko, spring, well,	(atenco, full of water)
atschi, man (vir.),	oquichtli
checheltek, red,	chichiltic
cholo, toad,	tama-colin
chuvechka, far,	uehca
culut, a scorpion,	colotl
echegat, wind,	ehecatl
este, blood,	eztli
iagak, nose,	yacatl
ictle, good,	yectli
ikschi, foot,	ixitl
ima, hand,	maitl
imits, leg,	metztli
imperao, bad (Span. <i>imperito</i>),	
inachtaval, wing,	atlapalli
inagas, ear,	nacaztli
inenguajo, root,	nelhuayotl

ischko, eye,
 ischte, thread (Span. pita, the thread
 obtained from the Manguey),
 isoko, nest (of a bird),
 istak, white,
 istat, salt,
 istet, nail (of fingers or toes),
 isutschio, flower,
 itekses, egg,

 iti, mouth,

 itscha, house,
 itschkat, cotton,
 itsulteko-kali, roof,

 kaits, shoes,
 kiskuetspal, iguana,
 koehko, horn,
 koets, nugas (skirt),
 kot, tree,
 kotoschte, skin, leather,
 kott, firewood,
 kuat, snake,
 kujol, jakal, coyote,
 kumit, pot, jar (olla),
 kust, yellow,
 meste, moon,
 metat, metate,
 mischte, clouds,
 misto, cat,
 munantse, mother,
 muss, fire,
 musta, to-morrow,
 mutuchtsé, squirrel,
 mutsungal, hair,
 nagat, flesh, meat,
 nekte, sweet,
 neshta, ashes,
 niamigi, thirsty,

ixtololotli

 ichtli
 çolli
 iztac
 iztatl
 iztetl
 xochitl
 tetototl (from *tell*, stone,
 totoll, bird)
 from *itia*, to drink. The
 Nahuatl for mouth is *camatl*
 chane
 ichcatl
 ceuacaltia (*lit.*, to shade
 the house, *calli*)
 cactli

 quaquauitl
 cueitl
 quauitl
 cuetlaxtli
 quauitl
 coatl
 coyotl
 cumitl
 coztic
 meztli
 metlatl
 mixitl
 miztli
 mo-nantzin (thy mother)
 tlecocomoctli, flame
 moztli

 mo-tzuntli, thy hair
 nacatl
 necutic
 nextli
 ni-amiqui, I am thirsty

nimikukua, sick,
 notapetschko, bed,
 numitschi, fish,
 numpa, near,
 nupiltsi, son,
 nusiguapiltsi, daughter,

pallo, dog (Spanish, *perro*),
 piltzinte, child,
 pisti, hungry,
 pittatsi, father,
 pokte, smoke,
 puran, plantain (Spanish, *platano*),
 sachti, wax,
 sagat, leaf of a tree,
 sajuli, a mosquito,
 schali, sand,
 schigal, jicaro,
 schinamit, town,
 schuguscho, sour,
 schupanta, rain,
 schuschuk, green,
 sesek, cool,
 sigwat, woman,
 sinti, maize,
 soguitz, mud,
 tali, earth, ground,
 taloa, yesterday,
 taschi, tortilla,
 tecumat, calabash,
 tekpe, flea,
 temesch, lime,
 teng-uej, very big,
 tepitschi, little,
 tepitschil, grown-up child,
 teschuste, coal of fire,
 tet, stone,
 tiltek, black,
 timaga, bat,
 temutalpa, a bee,

ni-mocuiqui, I am sick
 no-tlapechtli, my bed
 no-michin, my fish
 ompa
 no-piltzin, my son
 no-ciua-piltzin, my female
 child

piltzintli
 napizti
 tatzin
 pochotl

zacatl, straw, grass
 çayulin
 xalli
 xicalli
 chinamitl
 chichie
 chachapani, to rain heavily
 xoxoctic
 cecec
 cihuatl
 cintli
 çoquitl
 tlalli
 yalhua
 tlaxcalhuia
 tecomatl
 tecpin
 tenextli
 cenca-uey
 tepiltan
 tepiltzin
 tlexochtli, a spark
 tetl
 tilitic
 temoli

teng-totonki, very warm,
 tepitschi, small,
 totonki, warm,
 tschikaguaste, comb,
 tschitschik, bitter,
 tsigat, an ant,
 tuschte, rabbit,
 tutuli, a chicken,
 tutumushti, ear of corn,

uchte, path, road,
 uej, big,
 uiste, thorn,
 umasat, deer,
 umit, bone,
 unka, to-day,
 tsotsogal, water pitcher,
 tsunteko, head,
 tuak, night,
 tucha, leaf of maize,
 tutot, bird,
 tugat, a spider,
 tun, sun,

cenca-totonia

totonia
 tziqauauztli
 chichic
 tzilazcatl
 tochtli
 tototl
 totomochtli (the dried
 husk or shuck of corn)
 otli
 huey
 uiztli
 mezatl
 omitl
 axcan
 tzotzocolli
 tzontli
 youalli
 tocyzuatl
 tototl
 tocatl
 tonatiuh

Phrases in Alaguilac.

Unka at, there is water.

Akten at, there is no water.

Schiwaka, come here.

Kapatia, Where goest thou?

Schuiemaga muss, Give me some fire.

Qualiga taschi, Bring tortillas.

Qualiga se plato, Take the plate.

Queschki que tscho, How much is it?

Kalen-it agua, I want to eat.

Schitagua, Eat.

*Numerals.**Alaguilac.**Nahuatl.*

1. se	ce
2. umi	ome
3. jei	yei
4. nagui	nahui
5. makuil	macuilli
6. tschikuasi	chiquace
7. tschikume	chicome
8. tschikwei	chiculy
9. matakticumí	chicunauí
10. matakti	matlactli
20. sempual	cempvalli

The Nahuatl which I have placed in the comparative list represents that tongue in its oldest and purest form as given in the Dictionary of Alonso de Molina, printed in 1571. The comparison leaves no doubt whatever, that the Alaguilac was a quite pure form of the Nahuatl, and when we allow for the difference in the orthography of Bromowicz, who writes as a German, from that of Molina, the variation is surprisingly little. In the phrases the *schí* represents the usual Nahuatl imperative form *xí*, the *x* in that tongue having the sound of the German *sch* and the English *sh* in "she."

The only change which has taken place in the numerals is in the number nine, the substitution for *chicunauí*, "one hand and four fingers," of *matakticumí*; but I have no doubt this was a piece of forgetfulness on the part of the venerable Dolores, and that she gave the word for twelve, *matlactliome* (10 + 2), instead of that for nine.

Two questions will arise in the mind of the critical reader: 1. Did any other language exist at Acasaguastlan to which the name Alaguilac could have been applied? If not, and allowing it to have been merely a slightly altered form of the Nahuatl, was it introduced into that locality before or after the Conquest?

To the first of these questions, we may safely reply with a clear negative. There is not a native proper name in the vicinity but belongs either to Nahuatl or Chorti. There is not the slightest

evidence in the Nahuatl vocabulary of the influence of any *tertium quid*. We may positively exclude the supposition of a third, wholly lost and unknown tongue, and unhesitatingly identify the "Alaguilac" of Juarros, with the "Tlacabastleca" of Palacio, and both with the ordinary Nahuatl.*

With this identification the last remaining problem in the aboriginal linguistics of Guatemala is solved. We may now confidently say that there was not a tribe found anywhere on its surface by the first explorers of whose linguistic affiliations we are ignorant. Every one can be assigned to its proper ethnographic group so far as this is practicable by a knowledge of its dialect.

As to the second query, whether this Nahuatl colony immigrated before or after the Conquest, we are without positive evidence. But the letter of Palacio, written in 1576, from observations extending over years previous to that date, indicates distinctly that the language of Acasaguastlan had a recognized and independent existence in his day, and, therefore, that the people who spoke it had been found in place when the Spaniards first mapped out the land.

This colony of Nahuas, which had wandered into the upper valley of the Motagua river, was probably an off-shoot from the extensive settlements which their kindred possessed on the Pacific slope in the present Department of Escuintla, some eighty or ninety English miles distant.

The Classification and Phylogeny of the Artiodactyla. By E. D. Cope.

(Read before the American Philosophical Society, October 7, 1887.)

This suborder is well defined, and embraces numerous forms, many of which are living. Although it includes much variety of type, the differences shade into each other so that there is considerable difficulty in expressing the natural system in form. The usual division is into the Omnivora and Ruminantia, which are, in the language of Kowalevsky, the

* The language called the "Apay" mentioned by Palacio as spoken at Acasaguastlan has been identified by Dr. Stoll as the Chorti (*Zur Ethnographie der Rep. Guatemala*, p. 106).